

ABSTRACT OF THE DISCLOSURE

A superlattice thermoelectric device. The device is comprised of p-legs and n-legs, each leg being comprised of a large number of at least two different very thin alternating layers of elements. The n-legs in the device are comprised of alternating layers of silicon and silicon carbide. In preferred embodiments p-legs are comprised of a superlattice of B-C layers, with alternating layers of different stoichiometric forms of B-C. This preferred embodiment is designed to produce 20 Watts with a temperature difference of 300 degrees C with a module efficiency of about 30 percent. The module is about 1 cm thick with a cross section area of about 7 cm² and has about 10,000 sets of n and p legs each set of legs being about 55 microns thick and having about 5,000 very thin layers (each layer about 10nm thick).

TECHNICAL FIELD